



# afralliance socialinnovation

## AfriAlliance MOOC#2 Final Assignment

Title: The role of Social Innovation in controlling Cholera

outbreak in Sudan

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### DESCRIPTION AND BACKGROUND

**W**ater scarcity affects more than 40 percent of people, an alarming figure that is projected to rise as temperatures do. Although 2.1 billion people have improved water sanitation since 1990, dwindling drinking water supplies are affecting every continent. More and more countries are experiencing water stress, and increasing drought and desertification is already worsening these trends. By 2050, it is projected that at least one in four people will suffer recurring water shortages. Safe and affordable drinking water for all by 2030 requires we invest in adequate infrastructure, provide sanitation facilities, and encourage hygiene. Protecting and restoring water-related ecosystems is essential. Ensuring universal safe and affordable drinking water involves reaching over 800 million people who lack basic services and improving accessibility and safety of services for over two billion. In 2015, 4.5 billion people lacked safely managed sanitation services (with adequately disposed or treated excreta) and 2.3 billion lacked even basic sanitation.

**T**he World Health Organization says that every year more than 3.4 million people die as a result of water related diseases, making it the leading cause of disease and death around the world. Most of the victims are young children, the vast majority of whom die of illnesses caused by organisms that thrive in water sources contaminated by raw sewage. According to an assessment commissioned by the United Nations, 4,000 children die each day as a result of diseases caused by ingestion of filthy water. The report says four out of every 10 people in the world, particularly those in Africa and Asia, do not have clean water to drink.

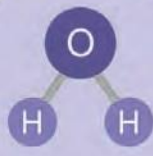
**M**ost countries in sub-Saharan Africa are affected by cholera epidemics ranging from annually to every 3–5 years or more. Cholera tends to be reported at the national or subnational level with few attempts to understand how it may simultaneously affect multiple countries in the same region. Published studies combining both microbiological and epidemiologic evidence are also scarce. However, better understanding of the interrelatedness of cholera spread between neighboring countries can provide the impetus for more cross-border collaboration in the fight against the disease. This subject is especially relevant in areas with porous borders that experience large population movements, like the border of South Sudan and Uganda.

**S**udan is facing a continuous surge of suspected cholera cases since 2016. In 2019 in Sudan, The floods destroyed around 11,000 latrines resulting in contamination of drinking water sources. In the same way, the increased turbidity of water has rendered standard chlorination measures and procedures ineffective, exposing the population to high risk of waterborne diseases. In addition to that, stagnant water offers a breeding ground for mosquitoes, increasing the incident rate of Malaria cases and posing a risk for vector borne diseases. Concentrations of mosquito larva has reached its highest in While Nile, Khartoum, North and Southern Kordofan states. Moreover, the floods disaster, coupled with an escalation of the cholera outbreaks, might result in displacement of affected communities adding on to the existing large number of refugees and displaced persons in Sudan. The Government swiftly responded to the detection of cases and necessary control measures are being implemented by national authorities, with support from partners, to contain the outbreak .The likely rise in population density in less-affected areas and temporary housing facilities, especially in larger villages and towns, may result in further contamination of water sources and an increase in vector borne diseases such as malaria.

### Abstract

This case study is conducted in Sudan after Cholera outbreak last years. It shows the contribution of social innovation dimensions in containing the ongoing cholera outbreak by reducing the case fatality and breaking transmissions routes through the implementation of **Health and WASH** interventions in favour of **24,000 Households** (144,000 people) affected or at risk of communicable diseases in Blue Nile, Sennar, Darfur , White Nile, Gedaref, Kassala and Khartoum States.

Technological solutions include chlorination activities and other wide arrays of treatment and storage techniques and low cost technologies were applied primarily at the point-of-use .Capacity building dimension insures the sustainability of clean water , training for citizens were conducted by arrange a meeting space that included or was near a functional water source or that had safe water nearby. Governance structure got all the stakeholders from different levels (National , Country and state levels) together to be involved in awareness activities , training , financial aids as well as planning for business roadmaps in order to lead the community to economic growth and implementing projects for the benefits of localities and citizens. Business roadmap helped in understanding the existing opportunities, the interconnection between stakeholders and private sector helped in products selection with a long term commitment to offer the service continuously and offer training sessions for citizens in projects management and monitoring water quality to ensure the efficiency and effectiveness of the projects.



## TECHNOLOGICAL SOLUTIONS

*“Simple techniques for treating water at home and storing it in safe containers could save a huge number of lives each year”*

WHO and UNICEF 2005

Water chlorination activities were conducted at eight water sources connected to the urban water network in both Ed Damazine and El Roseries towns (Blue Nile state). In addition, several open water sources have been chlorinated through citizens who volunteered to work actively at the intake area and other open sources. Citizens were volunteered to help in managing the outbreak. The volunteers managed to chlorinate 1,340 donkey carts and 5,200 jerrycans at water sources. New water sources have been installed to provide better water service to people in affected areas, with over 146,000 people now having improved access to safe water and sanitation in Blue Nile alone.



Fig(1) :Focus Group Discussion in Ganis area, Blue Nile;

Volunteered citizens and health workers had carried out solar infection by exposing water in disposable clear plastic bottles to sunlight for a day, typically on the roof of a house. Other households disinfected their drinking water by bringing it to a rolling boil which kills pathogens effectively. In order to be effective, however, the treated water was protected from re-contamination.

Combined flocculation/disinfection systems were also conducted by adding powders or tablets to coagulate and flocculate sediments and colloidal matters in water followed by a timed release of disinfectant. Vessels with narrow mouths and taps were recommended to reduce such contamination and reduce the risk of diarrheal disease and cholera outbreak.

**To monitor and contain the outbreak, The role of media was very effective in the Technological Solution dimension, in Blue Nile, mobile cinema shows reaching 370 people were staged, five theatre shows reaching 1,420 people and 16 health awareness messages were broadcast through radio.**

**The total number of beneficiaries from radio messages represent 75 per cent of the State population (873,750). In addition, 22 public sessions were conducted reaching 465 people and informational materials were distributed to 51,135 people.**



## SOCIAL INNOVATION

## GOVERNANCE STRUCTURES



*“Socially innovative initiatives at the community level can also be scaled upwards through the coordinating role of the state, while at the same time act as a pressure for more participatory forms of governance”*

The Federal Ministry of Health (FMOH) and WHO had worked together to strengthen disease surveillance, provide medical treatment for patients, distribute laboratory supplies, monitor water quality and chlorinate public water supplies, and promote health education and hygiene among affected as well as at-risk communities. The FMOH, WHO and UNICEF have already provided acute watery diarrhoea (AWD) kits—enough to treat 300 people—with three additional kits in the pipeline. In addition, IV fluids (Ringer lactate) and oral rehydration therapy supplies have already been provided for treatment of the patients. UNICEF is supporting eight Oral rehydration therapy point. The State Ministry of Health (SMoH) in Blue Nile in partnership with UNICEF is supporting water chlorination activities and hygiene awareness in AWD-affected areas of Blue Nile at household levels. Additional rapid response activities include house-to-house visits by nearly 700 community mobilisers, providing families with information about how to protect themselves by cleaning and storing drinking water safely, good hygiene and hand washing practices, keeping food safe, and on how to handle a sick family member.

Two cholera treatment centers are serving patients in Blue Nile, and a dedicated isolation center has been established for cholera case management; The response efforts conducted by Government authorities, United Nations (UN) agencies, International Non Governmental Organizations (INGOs), NGOs and other stakeholders present gaps, resulting in lack of assistance to people in need. Specifically, in the White Nile, Sennar, Khartoum and Gedaref states an estimated 36,000 people are still in need of WASH assistance.

Flooding and heavy rain in August resulted in extensive damage to education facilities in Central Darfur, Gedarif, Kassala, Khartoum, North Kordofan, White Nile and West Darfur with 297 basic schools, 293 kindergartens and 269 secondary schools being affected with White Nile and Khartoum states suffering heaviest affects. Classrooms have been either destroyed or partially damaged by the flooding; damaged latrines reduce access to school WASH facilities and pose health risks; fences have collapsed; and teaching and learning materials have been lost. UNICEF has released education supplies and is rehabilitating affected classrooms as part of flood emergency responses in the affected states.



Fig(4) : New semi-permanent school unit and latrines constructed in Tawilla, North Darfur. Credit: UNICEF

## CAPACITY DEVELOPMENT



*“Strengthening the capacity building of all countries, in particular developing countries as well as improving education, raising awareness and human institutional capacity is important for climate change health issues mitigations, adaptation , impact reduction and early warning”*

citizens were volunteered to be involved in the three (3) main Health activities

- (i) Identification and reporting of cases;
- (ii) set-up and manage Oral Rehydration Solutions
- (iii) conduct health education sessions and community engagement activities) that were organized on a rotational base, so as each volunteer could contribute to the success of the entire action and could maintain a good level of knowledge on the different actions.

Hygiene and safe water promotion sessions were conducted and a community awareness campaign conducted in marketplaces, churches, schools, distributions points and water collection points, where pool testing will be conducted by volunteers from citizens.

Citizens of targeted communities were trained on:

- i) safe water storage and on safe use of water treatment products.
- ii) Monitor treatment and storage of water through household surveys and household water quality tests
- iii) Chlorination of water supply, pool testing and Infection Prevention and Control

**Acknowledging that women, girls, men and boys with diverse ages, disabilities and backgrounds have very different needs, risk and coping strategies, the operation will pay particular attention to protection and inclusion of vulnerable**

**groups base and on gender and diversity analysis. Gender roles will be considered when setting up distribution time and dates as well as in health promotion activities (GOAL 5 and 10)**



Fig (2): Schools' awareness program

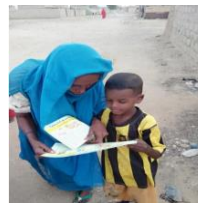
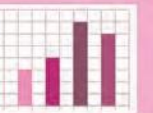


Fig (3): Intensive household visits in Kassala spreading key messages



## BUSINESS ROAD MAP



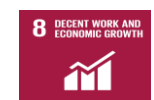
*“A policy shift towards household water management appears to be the most attractive short-term water-related health intervention in many developing countries”*  
The World Health Report 2002. Geneva

The Business Roadmap to control cholera outbreak includes increasing the capacity to manage cholera all over the country and should be urgently enhanced by: –

- i) Stepping up surveillance activities at all levels
- ii) Training of health workers in case management and infection control
- iii) Identification of key partners to set up and operate
- iv) Review emergency stocks available at state level

The proposed roadmap suggested long term infrastructure solutions together with the delivery of cholera drug in areas with high transmission of the disease. Identification of the vulnerable areas and hot spots is essential in order to provide citizens with the necessary training sessions to initiate their own business and ensure it will help in achieving the targeted business roadmap. Observations had concluded that rural communities are clever and have been able to survive and sustain themselves overtime through creative means , so the plan was to encourage them to work through entrepreneurship to reduce poverty and enhance their income and quality of their lives. The plan also encourages the participator budgeting Which allows residents to prioritize certain aspects as well as the innovative use of existing technologies.

Business road map enhances and strengthens the partnership for achieving SDGs (Goal No 17) specially for climate action (Goal No 13) , Clean water and Sanitation (Goal No 6) , Good health and well being (Goal No 3) , and Decent work and economic growth (Goal No 8).





The mortality rate in the African Region due to unsafe WASH services is four times the global rate. Altogether, improvements related to drinking-water, sanitation, hygiene, and water resource management could result in the reduction of almost 10% of the total burden of disease worldwide.

A targeted multi-sectoral approach was used to control cholera outbreak with continued emphasis on the relevance of SDGs, strengthen evident based solutions , applying the different dimensions of social innovation and prioritizing health an all policies.

Moving beyond disease specific solutions, the business roadmap focused on engaging the governance structure with communities to contribute in economic growth and thinking broadly about return on investment in health. Empowerment of women was present in all policies as well as engaging people with disabilities in all activities.

Finally, the case study represents one of the long-term applications of social innovation in climate change and controlling the health issues related to it with a mainstream throughout the intervention between stakeholders and citizens to guarantee maximum and meaningful participation of the affected communities

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